

1. BOSC 2017 Nominations

Self Nomination:

Yes

Nominator Information

First Name

Last Name

Nominator Title

Street Address

City

State

Postal Code

Email Address

Phone Number

Mobile Phone

Nominee Information

First Name

Joel

Last Name

Ducoste

Nominee Title

Professor of Environmental Engineering

Street Address

2501 Stinson Drive 208 Mann Hall

City

Raleigh

State

NC

Postal Code

27695

Email Address

jducoste@ncsu.edu

Phone Number

919-515-8150

Mobile Phone

Employment Information

Place of Employment/Work:

North Carolina State University

Work Street Address

2501 Stinson Drive 208 Mann Hall

Work City

Raleigh

Work State:

Nc

Work Postal Code

27695

Work Phone Number

919-515-8150

Work Email Address

jducoste@ncsu.edu

Sector

Academia

Qualifications

Primary Area(s) of Expertise

Drinking water and wastewater treatment processes, process modeling, computational fluid dynamics, reactor design

Committee Preference(s)

Executive Committee

Safe and Sustainable Water Resources Subcommittee

Statement of Interest

I have been an academic for 19 years and have worked in industry at General Electric and Ch2m Hill for 4 years. I have been very interested in making sure that we have been able to provide safe and sustainable water and having adequate water sanitation to our communities. My research has been able to improve our understanding of many different processes in drinking water and wastewater treatment. Through the models that I have developed and validated with experiments, practicing engineers can better optimize these processes and hopefully achieve a sustainable water system that provides ample protection of public health at a lower cost. I would like to serve on the EPA BOSC to help usher in the next generation of research that the EPA should explore to continue the pursuit of providing safe and sustainable water resources for an ever increasing US and world population.

Skills/qualifications related to committee preference(s) specified

Dr. Joel Ducoste is a Professor in the Civil, Construction, and Environmental Engineering Department at North Carolina State University (NCSU) and has been at the university since 1998. He holds a B.S. (1988) and M.Eng. (1989) in Mechanical Engineering from Rensselaer Polytechnic Institute, and a Ph.D. in Environmental Engineering (1996) from the University of Illinois at Urbana-Champaign. Dr. Ducoste is a recognized expert in modeling water and wastewater treatment processes using Computational Fluid Dynamics (CFD). His current research interests include physico-chemical processes in water treatment, computational fluid dynamics modeling, water/wastewater process optimization, wastewater sewer collection system sustainability, plant biosystems engineering, and solid waste process modeling.

Other Relevant Information

Dr. Ducoste currently serves as a board member of the U.S. Environmental Protection Agency Chartered Science Advisory Board, board member of the International ultraviolet association, International Association of Plumbing and Mechanical Officials (IAPMO) standards committee, IWA CFD Working Group, and board member of the North Carolina Fulbright Association. Dr Ducoste serves on the board of directors of Association of Environmental Engineering and Science Professors (AEESP). Dr. Ducoste also serves on AEESP's Demographics and membership committee since 2015 and as its chair since 2016. He also serves as the ENE program representative for NCSU with AEESP. Dr. Ducoste is a member of AWWA,

WEF, AEESP, IUVA, and a member of AAEEES. Dr. Ducoste has served on advisory committees such as EPA SAB Drinking Water Committee, EPA SAB Science Technology Awards Committee, EPA SAB Hydraulic Fracturing Committee, North Carolina House of Representative Offshore Energy Exploration Study Committee, WEF FOG Collection Systems Committee, Exploris Middle School Educational Excellence Committee, and Editorial Board Member: Journal of Environment Engineering ASCE. Prior to joining NC State University, Dr. Ducoste spent two years at CH2M Hill as a senior process engineer and before that as an advance-manufacturing engineer at GE Aircraft Engines.

CV/Resume URL

<https://www.ccee.ncsu.edu/people/jducoste/>

2. CV/Resume

Please upload your CV/ Resume.

[Ducoste_CV_for_EPA_BOSC_Nomination_final.pdf](#)

3.

BOSC Nomination

May 26, 2017 09:05:18 Success: Email Sent to: tracy.tom@epa.gov

4. Thank You for your Submission!

Joel Jean Ducoste
Resume
2501 Stinson Drive 208 Mann Hall
Raleigh, NC 27695-7908
919-515-8150
919-515-7908
jducoste@ncsu.edu

I. Summary:

1. Include Education (Degrees, Dates, Institutions, Locations):

Ph.D., Environmental Engineering, 1996, University of Illinois, Urbana-Champaign, IL
M.Eng., Mechanical Engineering, 1989, Rensselaer Polytechnic Institute, Troy, NY
B.S., Mechanical Engineering, 1988, Rensselaer Polytechnic Institute, Troy, NY

2. Professional Experience (Titles, Organizations, Locations, Dates of Employment):

Professor of Civil Engineering, North Carolina State University, 8/10 – Present
Associate Professor of Civil Engineering, North Carolina State University, 8/04 – 8/10
Assistant Professor of Civil Engineering, North Carolina State University, 8/98 – 8/04
Water Treatment Process Engineer, CH2M HILL, 1996-1998
Graduate Research Assistant, University of Illinois, 1991-1996
Manufacturing Engineer, GE Aircraft Engines, 1989-1991

3. Scholarly and creative activities: (INSTRUCTION: ADD/DELETE ACTIVITY TYPES TO THE LIST BELOW AS APPLICABLE; USE THE TAB KEY TO ADD ADDITIONAL ROWS; ACTIVITY TYPE EXAMPLES) (ITEMS IN BOLD DISPLAY CATEGORIES WITH SIGNIFICANT CHANGE SINCE LAST PA2 PERIOD)

<i>Type</i>	<i>Number</i>
Refereed Journal Article (Published)	63
Refereed Journal Editorial (Published)	1
Refereed Journal Article (Submitted or in revision)	3
Edited Special Issue Refereed Journal (Published)	1
Technical Report, Refereed	8
Conference Proceeding, Refereed	1
Conference Proceeding Edited Book, Refereed	1
Non-Refereed Journal Article (Published)	3
Conference Proceedings	74
Research Presentation, Invited (without paper)	53
Conference Presentations (without paper)	41

4. Professional Society Memberships:

- | | |
|---|----------------|
| 1) Member, American Academy of Environmental Engineers and Scientists | (2016-Present) |
| 2) Member, Water Environment Federation | (2011-Present) |
| 3) Member, International Ultraviolet Association | (2006-Present) |

- | | |
|---|----------------|
| 4) Member, American Water Works Association | (1992-Present) |
| 5) Member, Association of Environmental Engineering and Science Professor | (1999-Present) |
| 6) Member, National Society of Professional Engineers | (1991-2002) |
| 7) Member, American Society of Engineering Education | (2003-2005) |

5. Scholarly and Professional Honors:

<i>American Academy of Environmental Engineering and Science Excellence in Environmental Engineering and Science University Research Honor Award</i>	2017
<i>Board certified environmental engineer through eminence</i>	2016
<i>Keynote Speaker British Water FOG Forum, Cranfield UK</i>	2015
<i>NSF Advance Scholar Leadership Program</i>	2012
<i>National Academy of Engineering KECKs Future Initiative Symposium Participant</i> (100 engineers selected to join)	2011
<i>NSF Advance Scholar</i>	2009
<i>National Academy of Engineering Frontier of Engineering Japan Symposium Participant</i> (30 engineers selected from the USA to join 30 from Japan)	2008
<i>Fulbright Fellow</i> (Council for International Exchange of Scholars award)	2006
<i>FWO Visiting Faculty Scholar at Ghent University, Belgium</i> (Visiting research award provided by the National Science Foundation, Belgium)	2006
<i>NSF Career Award</i> (The award is the highest honor given by NSF to young university faculty in science and engineering)	2001
<i>Ralph Metcalfe Chair for Minority Scholars at Marquette University</i> (Visiting lecturer award) (The primary purpose of the Metcalfe Chair is to bring to Marquette University outstanding African-American and other minority scholars and professionals to interact with and enrich the academic life of Marquette University's students and faculty)	2000

Professional Licenses: Engineer-in-Training: Ohio, 1991

6. Professional service on campus: (INSTRUCTION: LIST ONE ON-CAMPUS SERVICE PER LINE, INCLUDE SERVICE DATES; NOTE LEADERSHIP ROLE IF HELD, E.G., CHAIR, CO-CHAIR, ETC.)

North Carolina State University and College of Engineering Committees:

- | | |
|--|----------------|
| 1) University Diversity Advisory Committee (UDAC) | (2014-Present) |
| 2) University Faculty Liaison (OIED) | (2014-Present) |
| 3) NSF Advance Scholar (Part of Developing Diverse Departments (3-D) program at NC STATE http://www.ncsu.edu/odi/advance/) | (2009-2012) |
| 4) College of Engineering Faculty Development & Special Initiatives Faculty Development Roundtable | (2008-Present) |
| 5) University Lifelong Faculty Involvement Committee | (2015-2016) |
| 6) College of Engineering Leadership Review Committee | (2015-2016) |
| 7) University Mentor Ring Program | (2015-Present) |
| 8) University Reappointment, Promotion, and Tenure Committee | (2016-2018) |

Civil, Construction, Environmental Department Committees:

- | | |
|---|----------------|
| 1) WREE group coordinator | (2004-2006) |
| 2) Lab Equipment Committee | (1999-2010) |
| 3) ABET Subcommittee: Senior Design and Lab | (2001-2004) |
| 4) Engineering Open House | (1998-1999) |
| 5) Executive Committee Member | (2005-2006) |
| 6) Awards committee member | (2005-2009) |
| 7) Seminar committee member | (2005-2007) |
| 8) ABET subcommittee member | (2005-2010) |
| 9) ABET ENE Coordinator | (2006-2012) |
| 10) ABET Design Committee Chair | (2013-Present) |
| 11) CCEE RPT committee (Chair, since 2012) | (2010-present) |
| 12) CCEE Energy Cluster Search Committee member | (2015-present) |
| 13) CCEE Diversity and Recruiting Committee (Chair) | (2016-present) |

7. Professional service off campus:

- | | |
|---|----------------|
| 1) Member, International Association of Plumbing and Mechanical Officials (IAPMO) standards committee | (2016-Present) |
| 2) AEESP Environmental Engineering Program representative for CCEE | (2016-Present) |
| 3) AEESP Membership and Demographics Committee, (chair since 2016) | (2015-Present) |
| 4) AEESP Board of Directors (Elected by Peers) | (2017-Present) |
| 5) Member, Exploris Middle School Educational Excellence Committee | (2014-2015) |
| 6) Member, EPA SAB Hydraulic Fracturing Advisory Panel | (2013-2016) |
| 7) IWA CFD Working Group | (2013-Present) |
| 8) Board Member, Chartered EPA Science Advisory Board | (2012-Present) |
| 9) Board Member, International UV Association | (2011-Present) |
| 10) Adhoc Member, EPA SAB Environmental Economics Advisory Committee | (2011-2012) |
| 11) Member, WEF FOG Collection Systems Committee | (2010-2012) |
| 12) Board Member, EPA Science Advisory Board Drinking Water Committee | (2009-2015) |
| 13) Board Member, EPA SAB Science Technology Awards Committee | (2009-2012) |
| 14) North Carolina House of Representative Offshore Energy Exploration Study Committee | (2009-2010) |
| 15) Board Member, North Carolina Fulbright Association (Treasurer) | (2008-Present) |
| 16) Editorial Board Member, Journal of Environment Engineering ASCE | (2007-2015) |
| 17) International Population Balance Modeling Organizing Committee | (2002-2009) |
| 18) International Population Balance Modeling Scientific Committee | (2002-2010) |

II. Teaching And Mentoring Of Undergraduate And Graduate Students:

A. Undergraduate Academic Advising:

Each academic year, I advise about 18 undergraduate students on course work and curriculum issues. In addition, each semester and during the summer, I advise 2-6 undergraduate students on research projects sponsored by NSF Research Experience for Undergraduates (REU), NCSU Minority Graduate Education (MGE) program, NCSU Division of Undergraduate Affairs Undergraduate Research Award, Confucius Institute that allows a student from Tsingua to study in the USA.

I have been a Park Scholar Faculty Mentor to Matt Authement (ENE 2012) and Caiti Cremer (CHE 2015)

http://www.ncsu.edu/park_scholarships/experience/mentors.php

I am also the undergraduate advisor for the student group PENC

Graduate Advising:

I am advising graduate students in multidisciplinary research activities that include wastewater: (formation of aerobic granulation in activated sludge systems, characterizing the fate of long chain fatty acids in sewer collection system, characterizing co-digestion of grease interceptor waste in anaerobic digestion), municipal solid waste: (characterizing and modeling elevated temperature formation in landfills), renewable fuels: (systems optimization of photo biorefineries for production of jet fuels using microalgae), and plant systems biology: (characterizing and modeling of Lignin biosynthesis metabolic and regulatory pathways, characterizing and modeling of iron homeostasis and regulation in root cells).

- B. Master's and doctoral theses directed and being directed; show numbers and dates in each category. If your department or college requires a list by name, please put it after the table. *(The information required here is mandatory; however, the following table is optional. Data may be reported in a different format but must include information as outlined in REG 05.20.20 II.D.)*

Graduate Academic Advising:

Chair or co-chair of Committee

Doctorate with Thesis

Name of Student	Degree	Position in committee	Date of Completion
Samrin Kusum	Ph.D.	Co-Chair	May 2020
Dieneye Tolofari	Ph.D.	Chair	May 2020
Zsiu Hao	Ph.D.	Co-Chair	May 2019
Yi chun Lai	Ph.D.	Co-Chair	May 2019
Joe Weaver	Ph.D.	Co-Chair	May 2017
Punith Naik	Ph.D.	Chair	May 2016 (Post Prelim)
Mahbuba Iasmin	Ph.D.	Chair	May 2014 (Successful defense Dec 2013)
Xia He	Ph.D.	Co-Chair	Dec 2011
David Olukanni	Ph.D. CE Covenant University, Nigeria	Co-Chair	May 2011
Tarek Aziz	Ph.D.	Chair	May 2010
Scott Alpert	Ph.D.	Chair	December 2008
Dong Liu	Ph.D.	Chair	December 2004
Yanjin Liu	Ph.D.	Chair	December 2004

Master of Science with Thesis

Name of Student	Degree	Position in committee	Date of Completion
Diyuan Wang	M.S. w/thesis	Chair	May 2018
Lochan Basnet	M.S. w/thesis	Chair	May 2017
Amanda Karam	M.S. w/thesis	Co-Chair	May 2016
Richard Jenny	M.S. w/thesis	Chair	May 2014
Roya Yousefelahiyeh	M.S. w/thesis	Chair	May 2014
Mehrnoosh Esfamiabadi	M.S. w/thesis	Chair	August 2012
Hunter Long	M.S. w/thesis	Chair	May 2012
Colleen Bowker	M.S. w/thesis	Chair	December 2010
Erin Gallimore	M.S. w/thesis	Chair	December 2010
Kiseok Jang	M.S. w/thesis	Chair	May 2008
Xi Zhao	M.S. w/thesis	Chair	May 2007
Brannon Richards	M.S. w/thesis	Chair	December 2004
Carolina Baeza	M.S. w/ thesis	Chair	July 2003
Cory Hopkins	M.S. w/ thesis	Chair	July 2002
Veronica A. Ortiz	M.S. w/ thesis	Chair	December 2001
Daniel K. Peplinski	M.S. w/ thesis	Chair	December 2000

Master of Civil or Environmental Engineering no Thesis

Name of Student	Degree	Position in committee	Date of Completion
Pooja Deshpande	M.ENE w/Proj.	Co-Chair	May 2017
Catherine McMillan	M.ENE. w/proj.	Chair	May 2016
Adam Smith	MCEZ	Chair	May 2018
Ryan Peterson	MCEZ	Chair	May 2018
Krysta Cione	MCEZ	Chair	May 2017
Divya Malyala	MCE Project	Chair	May 2016
Jorge Pesantez Sarmiento	MCE	Chair	May 2016
Keller Schnier	MCEZ	Chair	May 2016
Daniel Paynter	MCEZ	Chair	May 2016
Andrew Schimenti	MCEZ	Chair	May 2016
Madhu Chakravarthula	MCE	Chair	Dec 2015
Andria Pena	MENE Project	Chair	May 2015
Michele Tudor	MENEZ	Chair	May 2015
Lily Kalantar	MENEZ	Chair	May 2014
Chris Nelson	MENE	Chair	May 2014
Qian Wang	MENE	Chair	May 2014
Alberto Muniz	MENEZ	Chair	May 2014
Kathleen Boone	MENEZ	Chair	May 2014
Leonor Sanchez	MENE	Chair	May 2014
Yi Wang	MENE Project	Chair	May 2013
Christopher Cyril Sandeep Dominic	MENE	Chair	May 2012

Mohammad Shamsul Arafin	MENE	Chair	August 2011
Sara Allen	MCEZ	Chair	May 2011
Siddharth K. Lokineni	MCE	Chair	May 2011
Nandita Akunuri	MCE Project	Chair	December 2010
Vidya Mohandas	MCE Project	Chair	May 2010
Hsien Wang	MCE	Chair	December 2006
Corey Cavalier	MCE Project	Chair	May 2001
Liz Feliberty-Ruperte	MCE Project	Chair	May 2001
Stephen D. Terry	MCE Project	Chair	Transferred to Mech. E.
John E. Schrum	MCE Project	Chair	May 2000

Member of Committee

Doctorate with Thesis

Name of Student	Degree	Date of Completion
Zachary Hopkins	Ph.D. CCEE	May 2018
Mayu Kagawa	Ph.D. CCEE	May 2018
Maziar Vanouni	Ph.D. ECE	May 2018
Provat Saha	Ph.D. CCEE	May 2017
Zhimin Liu	Ph.D. Bio Ag	May 2017
Ling Wang	Ph.D. CCEE	May 2016
Johnsie Lang	Ph.D. CCEE	May 2016
Jina Song	Ph.D. Electrical Engineering	May 2014
Hsi-chuan chen	Ph.D. Forestry	Dec 2012
Jack Wang	Ph.D. Forestry	Dec 2012
Bilgen Yuncu	Ph.D. CCEE	Dec 2010
Rahul Vallabh	Ph.D. Textiles	December 2009
Alfred Rossner	Ph.D. CCEE	Dec 2008
Carolina Baeza	Ph.D. CCEE	Dec 2008
Inchio Lou	Ph.D. CCEE	May 2005
Troy Doby	Ph.D. CCEE	May 2005
Lei Li	Ph.D. CCEE	May 2002
Steve Terry	Ph.D. MAE	May 2005
James Dixon	Ph.D. Chemistry	May 2004
Sumate Chaiprapat	Ph.D. BAE	December 2002
Yi Sun	Ph.D. BAE	December 2002

Masters of Science with Thesis

Name of Student	Degree	Date of Completion
Jonathan Moreno Lopez	M.S. ENE	May 2016
Catalina Lopez Velandia	M.S. ENE	May 2016
Amber Gruene	M.S. ENE	Dec 2014
Viking Edeback	M.S. ENE	May 2014
Elisa Arevalo	M.S. ENE	May 2014
Elvin Hossen	M.S. ENE	August 2013
Ling Wang	M.S. ENE	May 2012
Zhao Jin	M.S. CCEE	May 2013
Meredith Fota	M.S. CCEE	August 2012
Leigh-Ann Dudley	M.S. CCEE	August 2012
Anjali Viswakumar	M.S. CCEE	May 2010
Lauren Wellborn	M.S. CCEE	August 2009
Lisa Mitchell	M.S. CCEE	May 2005
Gamze Gulez	M.S. CCEE	May 2005
Alfred Rossner	M.S. CCEE	May 2004
Nicholas Lindow	M.S. CCEE	May 2004
Cameron Long	M.S. CCEE	May 2004
Jon Williams	M.S. CCEE	May 2004
Patricia Quinlivan	M.S. CCEE	May 2001
Alix Rooker	M.S. CCEE	December 2000
Rinav Mehta	M.S. CCEE	December 2000
Thomas Murray	M.S. CCEE	December 2000
Caleb M. Taylor	M.S. CCEE	May 2000
C. Tyrus Clayton Jr.	M.S. CCEE	May 2000
Steven R. Gandy	M.S. CCEE	December 1999
Ryan Smith	M.S. BAE	May 2002
James Howard	M.S. BAE	December 2001
Bin Liu	M.S. BAE	December 1998

Master of Civil Engineering no Thesis

Hyunsuk Hong	MCE Project	May 2009
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Post Doctoral Student Advising:

Name of Student	Date of Completion
Olivier Prat, Ph.D.	August 2005

Adviser to Andres Rivera, University of Valle, Cali Valle Columbia, 2016

Adviser to Jean Aoussou, Imperial college of London exchange student GTI program 2012-2013

Adviser for the following award-winning graduate students for research

Amanda Karam, 3rd place 2015 NC AWWA/WEA student poster competition

Ling Wang, 1st place 2014 NC AWWA/WEA student poster competition

Catherine McMillan, 3rd place 2014 NC AWWA/WEA student poster competition

Richard Jenny, 2nd place 2013 NC AWWA/WEA student poster competition

Mehrnoosh Eslamiamirabodi, 3rd place 2012 NC AWWA/WEA Student poster competition

Xia He, W. 2012 Wesley Eckenfelder graduate research award, AAEE
 Xia He 1st place 2011 NC AWWA/WEA student poster competition
 Ling Wang, 2nd place 2011 NC AWWA/WEA student poster competition
 Mohammad Shamsul Arafin, 2nd place 2011 NC AWWA/WEA student poster competition
 Erin Gallimore, 1st place 2010 NC AWWA/WEA student poster competition
 Antonio Sobremisana, 3rd place 2008 NC AWWA/WEA Student poster competition

E. Cross-Disciplinary Activities - Include graduate program participation, special courses, and curricular development efforts.

I participated in a program designed to increase the number of graduates in science, technology, engineering and mathematics (STEM). This program was a joint collaboration between North Carolina State University and North Carolina Agricultural and Technological State University. The program was conducted in conjunction with faculty from MEAS, CHE, Physics, and Math departments. I was an instructor for a summer course as part of this program that introduced incoming freshmen to topics in environmental engineering. The course was a week long and involved lab work.

III. Scholarship In The Realms Of Faculty Responsibility

A. **Scholarly Accomplishments** - Publications (original research articles and research review articles in peer-reviewed journals, research abstracts, books), invited and uninvited research presentations, appointments or election to study sections and editorial boards.

Journal publications (Peer-reviewed)

Published

- 1) Karam, A., McMillan, C., Lai, Y., de los Reyes, F., Sederoff, H., Grunden, A., Ranjithan, R., Levis, J., Ducoste, J., 2017, Construction and Setup of a Bench Scale Algal Photosynthetic Bioreactor with Temperature, Light, pH Monitoring for Kinetic Growth Tests, Journal of Visual Experimentation, Accepted for publication
- 2) Yousefelahiyeh, R., Dominic, C.C.S., Ducoste, J., 2017, Modeling Fats, Oil, and Grease Deposit Formation and Accumulation in Sewer Collection Systems, Accepted to Journal of Hydroinformatics
- 3) Hao, Z., Malyala, D., Dean, L., Ducoste, J., 2017, Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy for determination of Long Chain Free Fatty Acid concentration in oily wastewater using the double wavenumber extrapolation technique, Talanta, (165), pp 526-532
- 4) Samstag, R.W., Ducoste, J. J., Griborio, A., Nopens, I., Batstone, D.J., Wicks, J.D., Suanders, S., Wicklein, E.A., Kenny, G., Laurent, J., 2016, CFD for Wastewater Treatment: An Overview, Water Science and Technology, 74(3), pp 549-563
- 5) Blaney, L., Kandiah, R., Ducoste, J., Perlinger, J., Bartelt-Hunt, S., 2016, Assessing the Growth and Demographics of Environmental Engineering from 2005-2013, Environmental Engineering Science, 33(8), pp 578-590

- 6) Xiong, J., Fu, D., Singh, R.P., Ducoste, J.J., 2016, Structural Characteristics and Development of the Cake Layer in a Dynamic Membrane Bioreactor, Journal Separation and Purification Technology, 167, pp 88-96
- 7) Iasmin, M., Dean, L., Ducoste, J., 2016, Quantifying Fat, Oil, and Grease Deposit Formation Kinetics, Water Research, 88(1), pp 786-795
- 8) Wicklein, E., Batstone, D., Ducoste, J., Laurent, J., Griboirio, A., Wicks, J., Samstag, R., Saunders S., Potier, O., Nopens, I., 2016, Good Modeling Practice in Applying Computational Fluid Dynamics for WWTP Modeling, Water Science & Technology, Online 9 November 2015, DOI: 10.2166/wst.2015.565
- 9) Jenny, R., Jasper, M., Simmons, O.D., Shatolov, M., Ducoste, J., 2015, Heuristic Optimization of a Continuous Flow Point of Use UV-LED Disinfection Reactor using Computational Fluid Dynamics, Water Research, 83: 310-318
- 10) Koryachko, A., Matthiadis, A., Muhammad, D., Foret, J., Brady, S.M., Ducoste, J., Tuck, J., Long, T., Williams, C., 2015, Clustering and Differential Alignment Algorithm: Identification of Early Stage Regulators in the Arabidopsis thaliana Iron Deficiency Response, Plos one, Vol 3-4, pp 20-29
- 11) Koryachko, A., Matthiadis, A., Ducoste, J., Tuck, J., Long, T., Williams, C., 2015, Computational approaches to identify regulators of plant stress response using high-throughput gene expression data, Current Plant Biology, Vol 3-4, pp 20-29
- 12) Ducoste, J., Alpert, S., 2015, Computational Fluid Dynamics Modeling Alternatives for UV-Initiated Advanced Oxidation Processes, Water Quality Research Journal of Canada, 50(1), pp 4-20
- 13) Nopens, I., Torfs, E., Ducoste, J., Vanrolleghem, P., Gernaey, K., 2015, Population balance models: a useful complementary modelling framework for future WWTP modelling, Water Science & Technology, Vol 71 No 2 pp 159–167
- 14) Laurent, J., Samstag, R., Ducoste, J., Griboirio, A., Nopens, I., Batstone, D., Wicks, J., Saunders S., Potier, O., 2014, A protocol for the use of computational fluid dynamics as a supportive tool for wastewater treatment plant modelling, Water Science & Technology, Vol 70 No 10 pp 1575–1584
- 15) Jenny, R., Simmons, O.D., Shatolov, M., Ducoste, J., 2014, Modeling a Continuous Flow Ultraviolet Light Emitting Diode Reactor using Computational Fluid Dynamics, Chemical Engineering Science, 116: 524-535
- 16) Fu, D., Singh, R.P., Kai, H., Ducoste, J.J., 2014, Enhanced Nitrogen Removal by Rice Husk Amended Dynamic Membrane Bioreactor, Journal of Env Eng ASCE, 140(11), DOI: 10.1061/(ASCE)EE.1943-7870.0000840
- 17) Chen, H., Song, J., Wang, J.P., Lin, Y., Ducoste, J., Shuford, C.M., Liu, J., Li, Q., Shi, R., Nepomuceno, A., Isik, F., Muddiman, D.C., Williams, C., Sederoff, R.R., Chiang, V.L., 2014, Systems Biology of Lignin Biosynthesis in Populus trichocarpa: Heteromeric 4-Coumaric Acid:Coenzyme A Ligase Protein Complex Formation, Regulation, and Numerical Modeling, Plant Cell, doi: <http://dx.doi.org/10.1105/tpc.113.119685>
- 18) Wang, J.P., Naik, P.P., Chen, H., Shi, R., Lin, C., Liu, J., Shuford, C.M., Li, Q., Sun, Y.H., Tunlaya-Anukit, S., Williams, C.M., Muddiman, D.C., Ducoste, J.J., Sederoff,

- R.R., Chiang, V.L., 2014, Complete Proteomic-Based Enzyme Reaction and Inhibition Kinetics Reveal How Monolignol Biosynthetic Enzyme Families Affect Metabolic Flux and Lignin in *Populus trichocarpa*, Plant Cell, doi: <http://dx.doi.org/10.1105/tpc.113.120881>
- 19) Iasmin, M., Dean, L., Lappi, S., Ducoste, J., 2014, Factors that influence the Properties of FOG deposit formation in sewer collection systems, Water Research, 49(1), pp 92-102
 - 20) Dominic, C., Szakasits, M., Dean, L., Ducoste, J., 2013, Understanding the Spatial Formation and Accumulation of Fats, Oils, and Grease Deposits in the Sewer Collection System, Water Science and Technology, 68(8) pp 1830–1836
 - 21) He, X., Iasmin, M., Dean, L., Lappi, S., de los Reyes, F.L., Ducoste, J., 2013, Mechanisms of Fat, Oil, and Grease Deposit Formation in Sewer Lines, Water Research, (47) 13, pp. 4451-4459
 - 22) Chen, H.C., Song, J., Williams, C.M., Shuford, C.M., Liu, J., Wang, J.P., Li, Q., Shi, R., Gokce, E., Ducoste, J., Muddiman, D.C., Sederoff, R.R., Chiang, V.C., 2013, Monolignol Pathway 4-Coumaric Acid:Coenzyme A Ligases in *Populus trichocarpa*: Novel Specificity, Metabolic Regulation, and Simulation of Coenzyme A Ligation Fluxes, Plant Physiology, Vol. 161, pp. 1501-1516
 - 23) Long, H., Aziz, T., de los Reyes, F. L., Ducoste, J., 2012, Anaerobic Co-Digestion of Fat, Oil, and Grease (FOG): A Review of Gas Production and Process Limitations, Process Safety and Environmental Protection, 90(3), pp. 231-245 **(Top 5 most highly cited article)**
 - 24) Aziz, T., Keener, K., Holt, L., Groninger, J., Ducoste, J.J., 2012, Field Characterization Of Grease Abatement Devices, Water Environment Research, 84(3), 237-246
 - 25) Olukanni, D., Ducoste, J., 2011, Optimization of Waste Stabilization Pond Design for Developing Nations using Computational Fluid Dynamics, Journal of Ecological Engineering, 37, pp. 1878-1888
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- 2) Yousefelahiyeh, R., Dominic, C.C.S., Ducoste, J., 2016, Modeling Fats, Oil, and Grease Deposit Formation and Accumulation in Sewer Collection Systems, Submitted to Journal of Hydroinformatics

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- 1) Nopens, I., Brisen, H., Ducoste, J., 2009, Celebrating a Milestone in Population Balance Modeling, Chemical Engineering Science, 64, pg 627

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Technical Reports (Peer-reviewed) Final reports to the American Water Works Association Research Foundation undergo a rigorous two-stage peer review by a project advisory committee comprised of three to four members from academia and environmental engineering practice. Reports are published by AWWARF and are the principal product for AWWARF subscribers (900 utilities in the US, Canada, United Kingdom, Germany, France, Australia, and Brazil as well as 43 consulting firms and 11 manufacturers).

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- 67) *Crozes, G., Hagstrom, J.P., Clark, M.M., Ducoste, J.J., Hermanowicz, S.W., Huntamer, J., 1996, Hydraulic Modeling for Improved CT Contactor Design, Proceedings of the American Water Works Association Annual Conference, Toronto, Ontario, 10 pgs.
- 68) *Clark, M.M. and Ducoste, J.J. 1996, A Journey in Understanding Mixing and Flocculation, Proceedings of the American Water Works Association Virginia Section, Williamsburg, Virginia., 1 pg.
- 69) *Ducoste, J.J., Clark, M.M., Weetman, R.J., 1995, The Evaluation of the Fluid Mechanics Generated in the Flocculation Process: Effects of Tank Size and Impeller Type, Proceedings of the American Water Works Association National Conference, Anaheim, California, 10 pgs.

Invited Presentations (No Paper)

- 1) Ducoste, J.J., 2015, Internal and External Grease Interceptors: Challenges in the Removal of FOG Emulsions and the Impact of Food Service Establishment Kitchen Operations, Keynote Speaker, FOG New Times New Solutions Conference Cranfield University UK
- 2) Ducoste, J.J., 2015, How Restaurant Kitchen Practices Influence FOG Deposit Formation in Sewer Collection Systems, Invited Presentation, CMOM Conference, Austin, TX
- 3) Ducoste, J.J., 2014, Evaluation of Alternative Herbicides for Root Control: Should we be worried about their impact on Wastewater Treatment Plants?, Invited Presentation, CMOM Conference, Austin, TX
- 4) Ducoste, J.J., 2014, Data and CFD to Compare Horizontal and Vertical/enclosed UV Reactors, IUVA Specialty Conference UV Disinfection for Wastewater and Reuse Program, Irvine, CA
- 5) Ducoste, J.J., 2013, New Tools to Assess the Potential Risk of FOG deposit Accumulation in a Wastewater Collection System, Invited Presentation, CMOM Conference, Austin, TX
- 6) Ducoste, J.J., 2012, Modeling the removal of EDC chemicals using Advance Oxidation, WEFTEC, New Orleans, LA
- 7) Ducoste, J.J., 2012, Fat, Oil, and Grease (FOG) in Sanitary Sewer Systems: Factors that influence Deposit formation, Invited Presentation at NC Annual Onsite Water Protection Conference, Raleigh NC
- 8) Ducoste, J.J., 2012, Chemical and Hydraulic Factors that influence the formation of FOG Deposits in Sewer Collection Systems, Invited Presentation, CMOM Conference, Austin, TX

- 9) Ducoste, J.J., 2012, Modeling Advance Oxidation Processes for Optimizing Reactor Performance, Invited Presentation, IUVA Conference, Washington, DC
- 10) Ducoste, J.J., 2012, Numerical Approach to Modeling UV Disinfection Processes: A State of the Art Review, Southeast University, Nanjing, PR China
- 11) Ducoste, J.J., 2012, Using Computational Fluid Dynamics Modeling to guide design decisions, AWWA UVCFD Presentation Sue Bach Email, Dallas, TX, June 10-14
- 12) Ducoste, J.J., 2011, Fat, Roots, Oil, and Grease (FROG) in Sanitary Sewer Systems: Is a Sustainable Sewer system in Jeopardy, Invited Presentation at NC Annual Onsite Water Protection Conference, Raleigh NC
- 13) Ducoste, J.J., 2011, Velocity Profiles and their Relevance in UV Reactor Validation, IUVA workshop, Tracy CA,
- 14) Ducoste, J.J., 2010, Fat, Roots, Oil, and Grease (FROG) in Sanitary Sewer Systems: Is a Sustainable Sewer system in Jeopardy, Invited Presentation at NC Annual Onsite Water Protection Conference, Raleigh NC
- 15) Ducoste, J.J., 2010, Can CFD Answer Hydraulic Questions and make Validation more broadly applicable?, Invited Presentation at AWWA Nation Conference Workshop: UV Today – Ten Years Post-*Cryptosporidium*– Myths and Reality
- 16) Ducoste, J.J., 2010, Fats Roots Oil and Grease in US Sewer Systems: An overview, Invited Presentation at FOGS Buildup and Removal: Problems and Solutions Workshop Cranfield University, UK
- 17) Ducoste, J.J., 2010, Simulating the UV/H₂O₂ Advanced Oxidation Process using Computational Fluid Dynamics, Invited Presentation, Rensselaer Polytechnic Institute, Troy, NY
- 18) Ducoste, J.J., 2010, Grease Interceptors vs Under the Sink Grease Traps: Who won the Taste Test of Removing influent Fats, Oils, and Grease, Invited Presentation, CMOM Conference, Austin, TX
- 19) Ducoste, J.J., 2009, Assessment of Root Control Methods and Root Regrowth in a Pilot Scale Sanitary Sewer, Invited Presentation, CMOM Conference, Austin, TX
- 20) Ducoste, J.J., 2009, Analysis of Field Grease Interceptors, Invited Presentation, CMOM Conference, Austin, TX
- 21) Ducoste, J.J., 2009, The Intricacies of Analyzing/Designing Ultraviolet UV Disinfection Reactors using CFD, Invited Presentation, Water Reuse Workshop, Polytechnic University at Bari, Taranto, Italy
- 22) Ducoste, J.J., 2009, Population Balance Modeling in CFD Simulations, Invited Presentation, Water Reuse Workshop, Polytechnic University at Bari, Taranto, Italy

- 23) Ducoste, J.J., 2009, Computational Fluid Dynamics Modeling for Unit Process simulations in Drinking Water Treatment, Invited Presentation, Water Reuse Workshop, Polytechnic University at Bari, Taranto, Italy
- 24) Ducoste, J.J., 2009, Analysis of Fat, Oil, and Grease (FOG) in Sanitary Sewer Systems: Challenges to a Sustainable system, Invited Presentation, Villanova University, Villanova, PA
- 25) Ducoste, J.J., 2009, CFD Modeling for UV Disinfection and UV-Initiated Advanced Oxidation Processes, Invited Presentation, Disinfection 2009, Atlanta, GA
- 26) Ducoste, J.J., 2009, Simulating Ultraviolet Advance Oxidation Processes in Continuous Flow UV Reactors, Invited Presentation, University of Michigan, Ann Arbor, MI
- 27) Ducoste, J.J., 2008, Analysis of FOG and Roots in Sewer Collection systems, Invited Presentation, Water Environment Research Foundation Forum, Clearwater Beach, FL
- 28) Ducoste, J.J., 2008, Analysis and Design of Grease Interceptors, Invited Presentation, Water Environment Technology Conference, Workshop 115, Chicago, IL
- 29) Ducoste, J.J., 2008, FAT, Roots, Oil, and Grease (FROG) in Sanitary Sewers: Results from a Recent WERF Sponsored Study, Invited Presentation, Water Environment Research Foundation Webinar
- 30) Ducoste, J.J., 2008, An Introduction to Population Balance Modeling, Invited Presentation, MBR Training Seminar, Ghent University, Belgium
- 31) Ducoste, J.J., 2008, An Overview of Computational Fluid Dynamics Modeling, Invited Presentation, MBR Training Seminar, Ghent University, Belgium
- 32) Ducoste, J.J., 2008, Some Thoughts on CFD Modeling for Membrane Bioreactor Processes, Invited Presentation, 2nd Workshop CFD Modeling for MBR Applications, Ghent University, Belgium
- 33) Ducoste, J.J., 2008, Analysis of FAT, Roots, Oil, and Grease (FROG) in Sanitary Sewers, Invited Presentation, CMOM Conference, Austin, TX
- 34) Ducoste, J.J., 2008, Modeling UV reactors in Drinking Water Systems, Invited Presentation, Chemical Engineering Department, Mississippi State University
- 35) Ducoste, J.J., 2008, Analysis of Grease Interceptors for the Removal of FAT, Oil, and Grease (FOG): Are they Sufficient to Stop FOG related Sanitary Sewer Overflows, Invited Presentation, Civil and Environmental Engineering Department, Arizona State University
- 36) Ducoste, J.J., 2008, Analysis of Fat, Oil, and Grease Deposits in Sanitary Sewer Systems, Invited Presentation at Borchardt Conference, University of Michigan, Ann Arbor, MI
- 37) Ducoste, J.J., 2006, Modeling the Regulatory Behavior of *E coli* in Heterogeneous Substrate Environment, University of Ghent, Belgium, Biomath Department

- 38) Ducoste, J.J., 2006, Modeling Flocculation in Secondary Clarifiers using Quadrature Method of Moments, Water Environment Federation Technology (Weftec) Workshop, Dallas, Texas.
- 39) Ducoste, J.J., 2006, The Impact of Upstream turbulence characteristics on Ultraviolet (UV) Disinfection Reactors Performance, Invited Presentation at Purdue University, Department of Chemical Engineering
- 40) Ducoste, J.J., 2005, The Intricacies of Designing Ultraviolet (UV) Disinfection Reactors using Numerical Models, Invited Presentation at ATLANTIUM LTD, Har Tuv, Israel
- 41) Ducoste, J.J., 2005, Simulation of Flocculation in Stirred Vessels using Quadrature Method of Moments: Evaluation of Lagrangian versus Eulerian Approaches, Invited Presentation at Department for Applied Mathematics, Biometrics and Process Control, Ghent University, Ghent, Belgium
- 42) Ducoste, J.J., 2005, Impact of Upstream Hydraulic Structures on UV Reactor Performance, Invited Presentation at Borchardt Conference, University of Michigan, Ann Arbor, MI
- 43) Ducoste, J.J., 2004, Numerical Prediction of the Reduction Equivalent Fluence Bias, Invited Presentation at Degremont North American Research & Development Center, Richmond, VA
- 44) Ducoste, J.J., 2004, Characterization of Dose Distribution in UV Reactors, Invited Presentation at Pennsylvania State University Department of Civil Engineering
- 45) Ducoste, J.J., 2003, The Intricacies of using Numerical Models for Analyzing/Designing Ultraviolet UV Disinfection Reactors, Invited Presentation at North Carolina Central University Environmental Engineering Science Program
- 46) Ducoste, J.J., 2001, An Overview of Computational Fluid Dynamics Modeling for Evaluation of Water and Wastewater Treatment Process Performance, Invited Presentation at Duke University Department of Civil and Environmental engineering
- 47) Ducoste, J.J., 2000, Modeling Flocculation in Water Treatment Processes: Impact of Tank Size and Impeller Configuration, Invited Presentation, Engineering Foundation on Population Balance Modeling of Particulate Systems, Kailua-Kona, Hawaii. (A portion of the invited speakers conference fees are waived by the conference organizers.)
- 48) Ducoste, J.J., 2000, IDDF Approach to Enhanced Reactor Hydraulic Characterization, Invited Presentation, Department of Civil and Environmental Engineering, Marquette University, (Seminar part of the Metcalf Chair)
- 49) Ducoste, J.J., 2000, Water Scarcity in the 21st Century: Has Time Come for Water Reuse, Invited Presentation, Public Forum at Marquette University, (Seminar part of the Metcalf Chair)

Presentations (No Paper)(* = Presenter)

- 1) de los Reyes, F. L. III, L. Wang, P. Shen, J. Yeh, T. Aziz, and J. Ducoste (2016). Directing microbial community assembly in anaerobic reactors: implications for increasing methane yields and improving start-up. WRI Conference, March 17-18, 2016, Raleigh, NC
- 2) *Hao, Z., Sun, M., Ducoste, J., Barlaz, M., 2016, Predicting Temperatures in Municipal Solid Waste Landfills: Preliminary Simulations, Global Waste Management Symposium, Jan 31-Feb 3, Indian Wells CA
- 3) *Wang, L., Hossen, E., Aziz, T.N., Ducoste, J., de los Reyes, F.L., 2015, How to train your digester - Using step and pulse feeding of grease waste to increase community resistance and methane yield above 336%, Student Platform Presentation Speaker, Air & Waste Management Association (AWMA), 108th Annual Conference & Exhibition, Raleigh NC
- 4) *Wang, L., Hossen, E., Aziz, T.N., Ducoste, J., de los Reyes, F.L., 2015, How to train your digester - Step and pulse feeding of grease interceptor waste increased community resistance and methane yield by up to 350%, “Fresh Ideas” Poster session, Annual Conference & Exposition (ACE), American Water Works Association (AWWA), Anaheim, California
- 5) Wang, L., Hossen, E.H., Aziz, T.N., Ducoste, J., Bullard, M., de los Reyes, F.L., 2014, Step and Pulse Feeding Of Anaerobic Co-Digesters Treating Thickened Waste Activated Sludge and Grease Interceptor Waste, Water Resources Research Institute Annual Conference, Raleigh, NC, March 19
- 6) Weaver, J., Ducoste, J., de los Reyes, F.L., 2014, Influencing Aerobic Granulation through Variable Shear in an Eccentric Couette Micro-Reactor, NC AWWA/WEA Conference, Winston Salem NC, Nov 16-19
- 7) *He, X., Ducoste, J., de los Reyes, F., 2012, A Comprehensive Mechanistic Model Showing How Fat, Oil, and Grease (FOG) Deposits Form in Sewer Lines, NC AWWA-WEA Annual Conference Raleigh, NC., Nov. 11-14
- 8) *Wang , Y., Ducoste, J., Challenges in the Measurements of Fat, Oil and Grease in Food Service Establishment Waste Streams, 2012, NC AWWA-WEA Annual Conference Raleigh, NC., Nov. 11-14
- 9) *Song, J., Chen, H., Shuford, C.M., Li, Q., Shi, R., Muddiman, D.C., Williams, C.M., Ducoste, J., Sederoff, R.R., Chiang, V.L., 2012, Mechanistic Modeling Frameworks for Multiple Enzyme Regulation in Metabolic Pathway, KSEA South Atlantic Regional Conference, Nov 15-17
- 10) *Aziz, T.N., Wang, L., Long, J.H., Ducoste,J.J., de los Reyes, III, F.L., 2012, Sustainable Energy from Grease Interceptor Waste Co-Digestion, NC AWWA-WEA Annual Conference Raleigh, NC., Nov. 11-14
- 11) *Iasmin, M., Ducoste, J., 2012, Factors that Influence the Physical and Chemical Characteristics of Fat, Oil, and Grease Deposits in Sewer Systems, North Carolina Water Resources Research Institute, March 28

- 12) *He, X., de los Reyes, F.L., Ducoste, J., 2012, How do Fat, Oil, and Grease Deposits form in Sewer Lines, North Carolina Water Resources Research Institute, March 28
- 13) Aziz*, T.N., Long, J.H., Wang, L., de los Reyes, F.L., Ducoste, J.J., 2012, Exploring Sustainable Energy from Grease Interceptor Waste, WRRRI Annual Conference & NCWRA Symposium, Raleigh, NC.
- 14) *Williams, C.M., Chen, H., Song, J., Ducoste, J., Shuford, C.M., Li, Q., Liu, J., Shi, R., Muddiman, D.C., Sederoff, R.R., Chiang, V.L., 2012, Predictive Models of Regulatory and Metabolic Pathways for Monolignol Biosynthesis in *Populus trichocarpa*, Plant & Animal Genome XX Conference, Jan. 14-18, San Diego, CA
- 15) *He, X., Ducoste, J., de los Reyes, F.L., 2011, How are Fat, Oil and Grease (FOG) Deposits Formed in Sewer Lines?, NCAWWA/WEA, Nov 15,16, Winston-Salem, NC
- 16) *Karami, B., de los Reyes, F., Ducoste, J., 2011, Studying Formation of Nitrifying Aerobic Granules and Effect of Shear Distribution on Granulation NCAWWA/WEA, Nov 15,16, Winston-Salem, NC
- 17) *Arafin, M., Ducoste, J., 2011, Modeling and experimental Evaluation of UV LED Reactor using Computational Fluid Dynamics (Poster), NCAWWA/WEA, Nov 15,16, Winston-Salem, NC (3rd prize award)
- 18) *Ducoste, J., 2011, Water and Waster Treatment Process on Steriods: Using Computational Fluid Dynamics to Drive out Unit Process Inefficiencies, KECKS Futures Initiative, Nov 10-13, Irvine, CA
- 19) Sobriminsana*, Ducoste, de los Reyes, 2011, Combining CFD, floc dynamics, and biological reaction kinetics to model carbon and nitrogen removal in an activated sludge system, WRRRI, March 21, Raleigh, NC
- 20) Gallimore*, Ducoste, Assessment of Grease Abatement Systems, WEF Sewer Collection System Conference, NCAWWA/WEA, Nov 15,16, Winston-Salem, NC
- 21) Vallabh, R., Seyam, A.M.*, Banks-Lee, and Ducoste, J., Tortuosity in Fibrous Porous Media, the Proceedings of the 7th International Conference of Textile Research Division, National Research Center, Cairo, Egypt, October 10-12, 2010.
- 22) Vallabh, R., Seyam, A.M.*, Banks-Lee, and Ducoste, J., Tortuosity of Nonwoven Structures, the 7th International Conference of Textile Research Division, National Research Center, Cairo, Egypt, October 10-12, 2010.
- 23) Vincent Chiang*, Ron Sederoff, John Ralph, Joel Ducoste, Fikret Isik, Cranos Williams, David Muddiman, Lignin proteome, metabolome, enzymology, biochemistry, transgenics, structural chemistry, and systems modeling, Forest Biotechnology Industry Research Consortium (FORBIRC) Annual Meeting McKimmon Center, NCSU, May 26-28, 2010
- 24) Cranos Williams*, Joel Ducoste, Jina Song, Fikret Isik, Ron Sederoff and Vincent Chiang Predicting regulatory control of lignin biosynthesis using signaling graph methodology Forest Biotechnology Industry Research Consortium (FORBIRC) Annual Meeting McKimmon Center, NCSU, May 26-28, 2010

- 25) Joel Ducoste*, Cranos Williams, Jina Song, His-Chuan Chen, Fikret Isik, Ron Sederoff and Vincent Chiang, Regulatory constrained flux balance analysis of monolignol biosynthesis Forest Biotechnology Industry Research Consortium (FORBIRC) Annual Meeting McKimmon Center, NCSU, May 26-28, 2010
- 26) Sobriminsana*, Ducoste, de los Reyes, 2010, A Numerical Approach for Modeling Carbon and Nitrogen Removal Under the Influence of Floc Size Distribution, IWA Leading Edge Conference, Pheonix, AZ June 4-8, 2010
- 27) de los Reyes, F., *Ducoste, J., 2010, Factors Affecting the Formation of FOG Deposits in Sewer Lines, Urban Water Consortium Meeting, June 4, Raleigh NC
- 28) Xia*, Ducoste, de los Reyes, 2010, Investigating the Formation of Fat Oil and Grease Deposits in Sewer Collection Systems, WRRI Conference, Raleigh, NC March 15....
- 29) Alpert, S. M., & Ducoste, J. J., 2009, Validation of CFD Models Simulating the UV/H₂O₂ Advanced Oxidation Process. North Carolina AWWA/WEA Annual Conference, Raleigh, NC.
- 30) *de los Reyes, F., *Ducoste, J., 2009, Factors Affecting the Formation of FOG Deposits in Sewer Lines, Urban Water Consortium Meeting, March 11, Burlington NC
- 31) *Sobremisana, A., F. L de los Reyes III, and J. J. Ducoste (2009) Simultaneous Modeling Carbon and Nitrogen Removal under the Influence of Floc Size Distribution. NC American WaterWorks Association/Water Environment Association Annual Conference, November 15-18, Raleigh, NC
- 32) Ducoste, J., *Aziz, T., Buckley, T., Movahed, Z., Card, C., Gallimore, E., 2008, Design Considerations for Volume Based Grease Interceptors, Chesapeake Water Environment Association Conference on Collection Systems, November 14, Linthicum, MD
- 33) *Ducoste, J., 2008, Improving our Understanding of Complex Reacting Processes in Water and Wastewater Treatment through Computational Fluid Dynamics, National Academy of Engineering Frontiers of Engineering Conference, November 17-19, Kobe, Japan
- 34) *Sobrimisana A., de los Reyes, F., Ducoste, J., 2008, A Numerical Approach for Modeling Carbon and Nitrogen Removal under the Influence of Floc Size Distribution poster presentation, NCAWWA/WEA 88th Annual Conference, November 16-19, Winston Salem, NC
- 35) *Gallimore, E., Ducoste, J.J., 2008, Performance of Grease Interceptors: Evaluating Design Alternatives, poster presentation, NCAWWA/WEA 88th Annual Conference, November 16-19, Winston Salem, NC
- 36) de los Reyes, F. L., J. Ducoste, M. Hyman, C. Mota, D. Aslett, and H. Hong (2007), New Approaches in Determining the Spatial and Metabolic Interactions of Nitrogen-Transforming Bacteria in Microbial Flocs, NSF MO/MIP Meeting, Mar. 1, Washington, DC

- 37) *Liu, Y. and Ducoste. J.J., 2005, Impact of Turbulent Mixing on Chloramines Formation Proceedings Chesapeake Section AWWA Annual Conference, Dover, DE
- 38) *Richards, B., J.J., Ducoste, 2004, Characterizing Sequential Disinfection in Flow Through Systems, 4th Annual Eastern Regional Conference, New Bern. NC
- 39) *Prat, O., Ducoste, J.J., 2004, Performance Analysis of Quadrature Method of Moments (QMOM) for PBM Systems used in Assessing Flocculation Processes in Water and Wastewater Treatment, 2nd International Population Balance Modeling, Valencia, Spain May 7-9
- 40) *Ducoste, J.J., V., Ortiz, Y., Liu, 2002, A Multifluid Modeling Approach to Characterizing Chemical Dispersion in Drinking Water Treatment, Water Resources Research Institute Annual Conference, Raleigh, NC, April 9

B. Recognized Creative Artistry and Professional Accomplishments - Include publication of creative or professional works, exhibitions, honors, awards, fellowships, prizes, competitions, and other pertinent evidence.

Keynote Speaker British Water FOG Forum, Cranfield UK	2015
National Academy of Engineering KECK Future Initiative Symposium Participant	2011
NSF Advance Scholar	2009
National Academy of Engineering Frontiers of Engineering Japan Symposium Participant	2008
Associate Editor, Journal of Environmental Engineering ASCE	2007
Fulbright Scholar	2006
FWO Visiting Faculty Scholar University of Ghent, Belgium	2006
Faculty Early Career Development (CAREER) Award from NSF	2001
Ralph Metcalfe Chair for Minority Scholars at Marquette University	2000